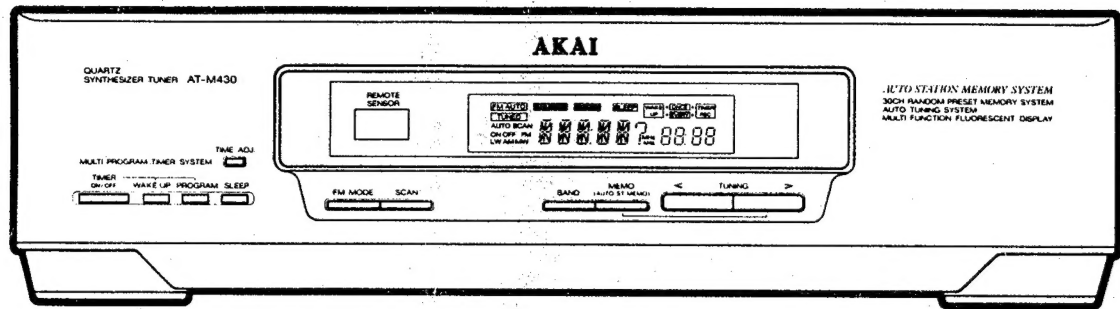
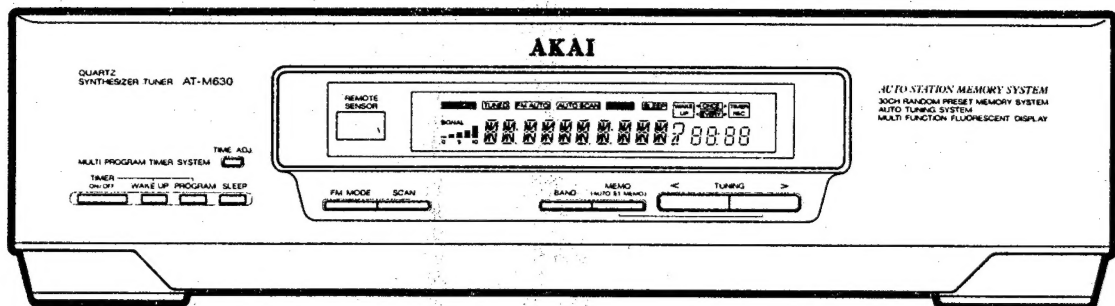


# AKAI SERVICE MANUAL



MODEL AT-M430



MODEL AT-M630

QUARTZ SYNTHESIZER TUNER

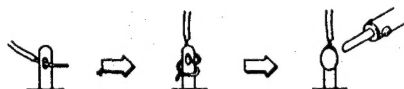
MODEL **AT-M430/L**

MODEL **AT-M630/L**

## ★ SAFETY INSTRUCTION

### PRECAUTIONS DURING SERVICING

- Parts identified by the  $\Delta$  (\*) symbol are critical for safety. Replace only with parts number specified.
- In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
- Use specified internal wiring. Note especially
  - Wires covered with PVC tubing
  - Double insulated wires
  - High voltage leads
- Use specified insulating materials for hazardous live parts. Note especially
  - Insulation Tape
  - PVC tubing
  - Spacers (Insulating barriers)
  - Insulation sheets for transistors
  - Plastic screws for fixing microswitch (especially in turntable)
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

- Check that replaced wires do not contact sharp edged or pointed parts.
- Also check areas surrounding repaired locations.
- Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

### SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit. The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15  $\mu$ F capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

### MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.

Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.



## ★ INFORMATION

### SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[B]	UK
[E]	Europe (except UK)
[S]	Australia
[V]	Germany
[U]	Universal Area
[Y*]	Custom version

### ABOUT THE POWER SUPPLY

Power supply and power control data for the AT-M430/M630 are supplied from the amplifier. Therefore when repair of the AT-M430/M630 is necessary, repair should be made together with the respective amplifier.

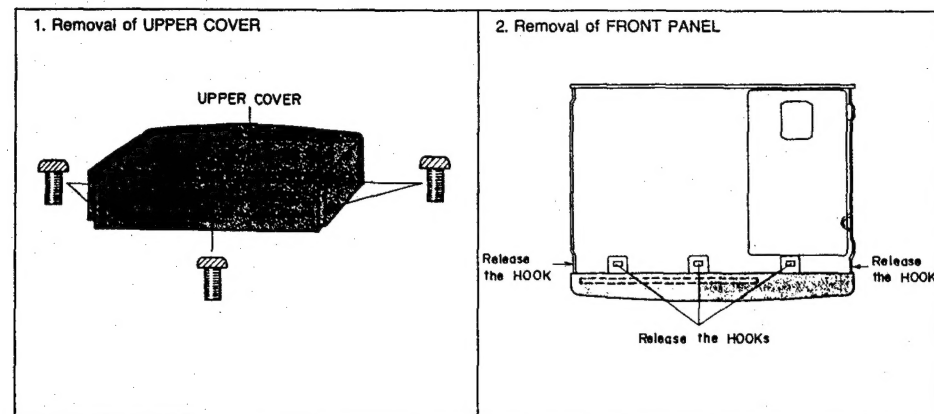
## ★ SPECIFICATIONS

FM TUNER SECTION	Except [V] model	[V] model only
Tuning frequency range	87.5 MHz to 108 MHz	87.5 MHz to 108 MHz
Useable sensitivity	13.2 dBf	18.2 dBf
Quieting sensitivity		
MONO	21.2 dBf	30.2 dBf
STEREO	42.2 dBf	51.2 dBf
Capture ratio	2.0 dB	2.0 dB
Selectivity	60 dB	70 dB
Image rejection	45 dB	70 dB
IF rejection	80 dB	90 dB
Spurious rejection	80 dB	80 dB
AM suppression	55 dB	55 dB
S / N ratio (IHF)		
MONO	70 dB	65 dB
STEREO	65 dB	60 dB
T.H.D		
MONO	0.3 %	0.3 %
STEREO	0.7 %	0.7 %
Stereo separation (1kHz)	40 dB	40 dB
Frequency response	30 Hz to 15 kHz $\pm 1.0$ dB	30 Hz to 15 kHz $\pm 1.0$ dB
Output level	770 mV (100% Mod.)	650 mV (100 % Mod.)
AM TUNER SECTION	Except [V] model	[V] model only
Tuning frequency range		
10 kHz step	530 kHz to 1,610 kHz	
10 kHz step ([U] only)	530 kHz to 1,700 kHz	
9 kHz step	531 kHz to 1,602 kHz	531 kHz to 1,602 kHz
Useable sensitivity	400 $\mu$ V/m	400 $\mu$ V/m
Selectivity	20 dB	20 dB
Image rejection	35 dB	35 dB
IF rejection	35 dB	35 dB
S/N ratio	40 dB	40 dB
Output level (30 % Mod.)	250 mV	250 mV
LW SECTION	AT-M430L/M630L only	
Tuning frequency range	144 kHz to 351 kHz	
Useable sensitivity	800 $\mu$ V/m	
Selectivity	25 dB	
Image rejection	30 dB	
IF rejection	35 dB	
S/N ratio	30 dB	
TIMER SECTION		
Timer base	Quartz oscillator	
Timer display	24 hour notation	
Timer system	Daily type (TIMER REC / WAKE-UP / SLEEP)	
Timer set period	1 minute to 23 hours and 59 minutes	
GENERAL		
Power requirements	Supplied from amplifier	
Dimensions	360 (W) x 95 (H) x 305 (D) mm	
Weight	1.9 kg	
STANDARD ACCESSORIES		
FM antenna	x 1	
Plug adapter	x 1	
AM loop antenna	x 1	

\*For improvement purposes, specifications and design are subject to change without notice.

## I. DISASSEMBLY

In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in reverse order.



## II. PRINCIPAL PARTS LOCATION

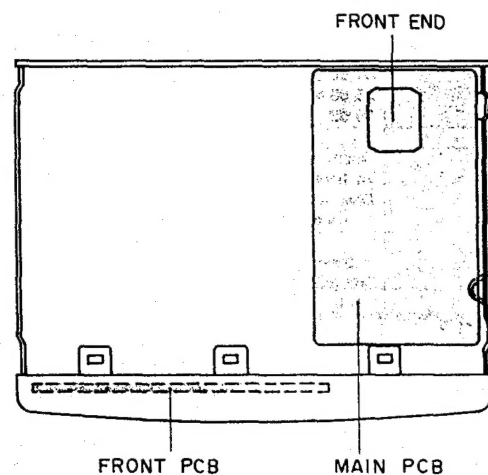


Fig. 2-1 Top view

## III. ADJUSTMENT

### 3-1. INSTRUMENT CONNECTIONS

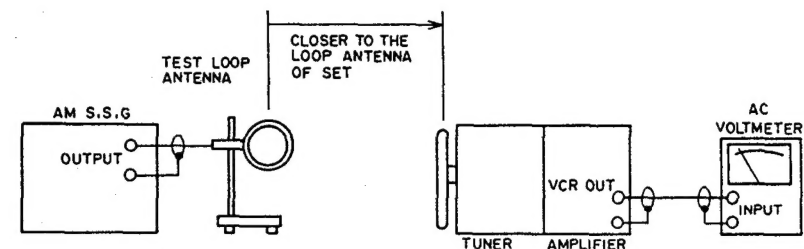


Fig. 3-1 Instrument connection for AM (MW, LW) section adjustment

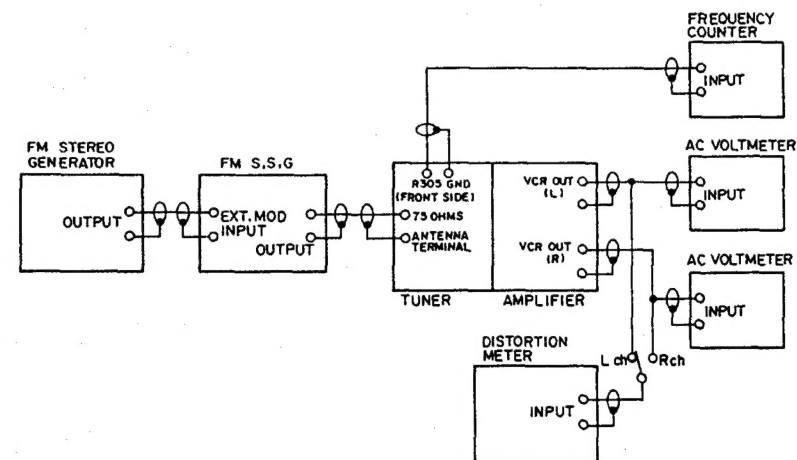


Fig. 3-2 Instrument connection for FM section adjustment

### 3-2. HOW TO CALL THE PRESET FREQUENCY FOR THE ADJUSTMENT

Press the RESET button on the rear panel. The internal frequency preset memory is set as shown below.

[E], [B] models]

	CH1	CH2	CH3	CH4	CH5	CH6
BAND	FM	FM	FM	LW	LW	LW
FREQ.	98.0MHz	88.0MHz	108.0MHz	162kHz	297kHz	198kHz
ST/MONO	FM AUTO	MONO	MONO	MONO	MONO	MONO

	CH7	CH8	CH9	CH10	CH11	CH12
BAND	MW	MW	MW	LW	FM	FM
FREQ.	1404kHz	603kHz	999kHz	351kHz	87.5MHz	90.0MHz
ST/MONO	MONO	MONO	MONO	MONO	MONO	MONO

	CH13	CH14	CH15	CH16	CH17-30	
BAND	FM	MW	MW	LW	FM	
FREQ.	106.0MHz	531kHz	1602kHz	144kHz	87.5MHz	
ST/MONO	MONO	MONO	MONO	MONO	MONO	

[U], [V] models]

	CH1	CH2	CH3	CH4	CH5	CH6
BAND	FM	FM	FM	AM	AM	AM
FREQ.	98.0MHz	88.0MHz	108.0MHz	1404kHz	603kHz	999kHz
ST/MONO	FM AUTO	MONO	MONO	MONO	MONO	MONO

	CH7	CH8	CH9	CH10	CH11	CH12-30
BAND	FM	FM	FM	AM	AM	FM
FREQ.	87.5MHz	90.0MHz	106.0MHz	531kHz	1602kHz	87.5MHz
ST/MONO	MONO	MONO	MONO	MONO	MONO	MONO

#### NOTE: ABOUT TUNING STEP CONVERSION

The AM frequency band of this tuner is preset to 9 kHz tuning intervals. However, the frequencies of AM broadcasts in some countries are set at 10kHz intervals.

If your country uses 10kHz tuning intervals the following tuning step conversion is necessary before you can tune in stations.

1. Turn the amplifier's power on.
2. Press the BAND button until the AM indicator appears on the tuner's FL display.
3. Press and hold the FM MODE button until "AM 530kHz" appears on the FL display. Tuning intervals will now be set to 10kHz.

To reset the tuner to 9kHz tuning intervals:

- Press the RESET button located on the tuner's rear panel with a ball point pen etc.



### 3-3. ADJUSTMENT

NOTE: Set the SSG to 1 kHz, 75 kHz deviation for **U**, **S**, **B** and **E** models, 40 kHz deviation for **V** model.

STEP	ADJUSTMENT ITEM
1.	SSG frequency, output level
2.	Tuning frequency
3.	Test point, Adjustment part
4.	Remarks (*) & result (*)

Adjustment part

Test point

#### FM

##### 5 FM STEREO SEPARATION

- 98.0 MHz, 60 dBμ STEREO L or R channel only)
- 98.0 MHz
- VCR OUT, VR301
- Connect an AC milli-voltmeter to the amplifier's VCR OUT (opposite channel of signal input channel).  
\* Minimum output level

##### 4 FM MPX FREE RUNNING FREQUENCY

- No signal input
- Anywhere without broadcasting
- R305, VR302
- Connect a frequency counter between front side end of the R305 and GND.  
\* 38 kHz

##### 7 FM SIGNAL INDICATOR (AT-M630/L only)

- 98.0 MHz, 30 dBμ
- 98.0 MHz
- SIGNAL indicator on the front panel, VR202
- This adjustment must be done before AM SIGNAL INDICATOR adjustment.  
\* 5th signal indicator is lit.

##### 3 FM CENTER VOLTAGE

- 98.0 MHz, 60 dBμ
- 98.0 MHz
- R110, T101
- Connect a DC voltmeter to both ends of R110 (TP CNT).  
\* 0 mV.

##### 1 FM OSC

- No signal input
- 87.5 MHz
- JW64, L7 (FRONT END)
- Connect a DC digital voltmeter between JW64 (TP VT) and GND.  
\* DC 3.5 V

##### 6 FM DISTORTION (STEREO)

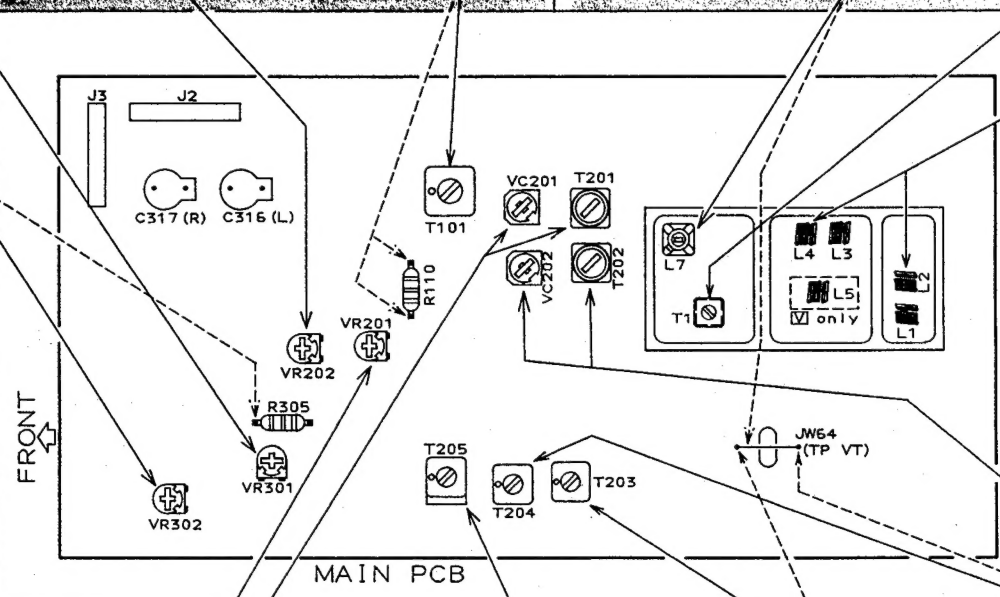
- 98.0 MHz, 60 dBμ (STEREO)
- 98.0 MHz
- VCR OUT, T1 (FRONT END)
- Connect the distortion meter to the amplifier's VCR OUT.  
\* Less than 2 %

##### 2 FM SENSITIVITY

- 87.5 MHz, 15 dBμ
- 87.5 MHz
- VCR OUT, L2, L4 and L5 (**V** only)
- Connect the AC milli-voltmeter to the amplifier's VCR OUT.  
\* Maximum output level



\* ADJUSTMENT METHOD OF L2, L4 and L5



#### AM

NOTE: 1. Set the S.S.G to 1 kHz 30% modulation of each.  
2. Indicated frequencies in [ ] are the model for 10 kHz step.

##### 4 AM SIGNAL INDICATOR (AT-M630/L only)

- 999 [1,000] kHz, 80 dBμ
- 999 [1,000] kHz
- VCR OUT, VR201
- This adjustment must be done after FM SIGNAL INDICATOR adjustment.  
\* 5th signal indicator on the front panel is lit.

##### 2 AM (MW) SENSITIVITY

- 603 [600] kHz (Low) / 1,404 [1,400] kHz (High), 70 dBμ
  - 603 [600] kHz (Low) / 1,404 [1,400] kHz
  - VCR OUT, T201 (Low) / VC201 (High)
  - Connect the AC milli-voltmeter to the amplifier's VCR OUT.  
\* Maximum output level
- NOTE: For best results, alternately repeat low and high adjustment several times.

##### 3 AM IF

- 603 [600] kHz, 74 dBμ
- 603 [600] kHz\*
- VCR OUT, T205
- Connect the AC milli-voltmeter to the amplifier's VCR OUT.  
\* Maximum output level

##### 1 AM (MW) OSC

- No signal input
- 1,404 [1,400] kHz
- JW64, T203
- Connect the DC voltmeter between JW64 (TP VT) and GND.  
\* DC 6.7 V

#### LW

NOTE: 1. Set the S.S.G to 1 kHz 30% modulation of each.

##### 2 LW SENSITIVITY

- 106 kHz (Low) / 300 kHz (High), 70 dBμ
  - 106 kHz (Low) / 300 kHz (High)
  - VCR OUT, T202 (Low) / VC202 (High)
  - Connect the AC milli-voltmeter to the amplifier's VCR OUT.  
\* Maximum output level
- NOTE: For best results, alternately repeat low and high adjustment several times.

##### 1 LW OSC

- No signal input
- 350 kHz
- JW 64, T204
- Connect the digital DC voltmeter between JW 64 (TP VT) and GND.  
\* DC 8.2 V

## VI. PARTS LIST

### ATTENTION

- When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
- Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
- Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

### HOW TO USE THIS PARTS LIST

- This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
- The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
- Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
- How to read the Parts List.

#### a) Mechanism Block

#### 2. HEAD BASE BLOCK

Ref. No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PRA-8FU C
3	ZS-477876	PAN20*03STL CMT
4	ZS-536488	BID20*08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification  
This number corresponds with the individual parts index number in that figure.

#### b) PC Board

#### 6. MAIN PC BOARD

Ref. No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination  
[A]: AAL (U.S.A) [S]: SAA (Australia)  
[B]: BEAB (England) [U]: U/T (Universa Area)  
[C]: CSA (Canada)  
[E]: CEE (Europe) [V]: VDE (W. Germany)  
[J]: JPN (Japan) [Y]: Custom Version

SP (Service Parts) Classification  
These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

- When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

### WARNING

△ (\*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

### AVERTISSEMENT

△ (\*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

### 1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	BA-F0141A010B	PC FRONT END BLK FE41 (V)
2	ED-307572	D SILICON H 1SS131
3	ED-372893	D VARACTOR SVC321SPA A DBL
4	ED-348448	D VARACTOR 1SV147
5	ED-324526	D ZENER H HZ12 C1
6	ED-306010	D ZENER H HZ6 A2
7	EH-344434	FILTER CE BFU450C4N 0.450MHZ
8	EH-394759J	FILTER CE SFE10.7MS2GK-A [U]
9	EH-338338	FILTER CE SFE10.7MS3GK-A [V]
10	EH-360924	FILTER LC BP BPM6A [V]
11	EH-405199J	FILTER LC LP K7-J1YD-0170 [V]
12	EH-403228J	FILTER LC LP S033368 [V]
13	EI-367572	IC BA15218
14	EI-361624	IC LA1265
15	EI-361622	IC LM7001
16	EI-359683	IC TA7343AP
17	EI-401274J	IC TMP47C870N-4324 FXA2TN1 [AT-M630/L]
18	EI-401276J	IC TMP47C870N-4327 FXX2TN1 [AT-M430/L]
19	EI-389618J	OSC X'TAL AT-51 4.194304MHZ
20	EI-344422	OSC X'TAL HC-18/U 7.200MHZ
21	EM-392846J	IND FL FIP14JMS CHARACTER [AT-M630/L]
22	EM-392847J	IND FL FIP9BKM8 CHARACTER [AT-M430/L]
23	EO-389617J	COIL DET 2 777-5073-04 10.7MHZ
24	EO-405195J	COIL IFT BCFLZ-450A
25	EO-356732	COIL IFT BCFLZ-450A
26	EO-405197J	COIL OSC 2 008116022 580.0UH
27	EO-405196J	COIL OSC 2 008116025 150.0UH
28	EO-394422J	COIL VARI 2 4334-285
29	EO-395923J	COIL VARI 2 4334-298
30	EO-400666J	COIL VARI 2 4334-304
31	ES-362883	SW TACT SKHHLM [RESET]
32	ES-394427J	SW TACT SOR-133HS T05
33	ET-390397J	DETECTOR GP1U501
34	ET-369248	TR DTA114YS
35	ET-353897	TR DTC114ES
36	ET-354365	TR DTC114YS
37	ET-354371	TR DTC124ES
38	ET-354094	TR DTC144WS
39	ET-349449	TR FET 2SK161 O.Y
40	ET-349458	TR FET 2SK192A Y
41	ET-337759	TR FET 2SK246 GR
42	ET-353899	TR 2SA1317 S.T.U
43	ET-393714J	TR 2SC2999 C.D.E
44	ET-397160J	TR 2SC3330 R.S.T.U.V
45	ET-394735J	TR 2SC3792 T05
46	ET-356437	TR 2SC930 D2.E.F
47	ET-366581	TR 2SD1762 E.F
48	EW-394418J	WIRE ASSY A3063 14P [AT-M430/L]
49	EW-395054J	WIRE ASSY A3063-2 14P [AT-M630/L]

### 2. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1	BA-A3067T030D	ML PC (#) TUNER BLK ATM430 (U/ML)
2	BA-A3067T030E	ML PC (#) TUNER BLK ATM430(V/ML)
3	BA-A3067T030F	ML PC (#) TUNER BLK AT-M430L/ML
4	BA-A3067T030A	ML PC (#) TUNER BLK ATM630(U/ML)
5	BA-A3067T030B	ML PC (#) TUNER BLK ATM630(V/ML)
6	BA-A3067T030C	ML PC (#) TUNER BLK AT-M630L/ML

PC (#) TUNER BLK CONSISTS OF FOLLOWING P.C BOARD.

- TUNER P.C BOARD
- FRONT P.C BOARD

### 3. TUNER P.C BOARD (AT-M430/630)

Ref. No.	Part No.	Description
D201	ED-372893	D VARACTOR SVC321SPA A DBL
D202	ED-372893	D VARACTOR SVC321SPA A DBL
D301	ED-307572	D SILICON H 1SS131
D302	ED-307572	D SILICON H 1SS131
D303	ED-307572	D SILICON H 1SS131
D304	ED-307572	D SILICON H 1SS131
D401	ED-306010	D ZENER H HZ6 A2
D402	ED-307572	D SILICON H 1SS131
D501	ED-324526	D ZENER H HZ12 C1
D502	ED-307572	D SILICON H 1SS131
D503	ED-307572	D SILICON H 1SS131
D504	ED-307572	D SILICON H 1SS131
FE	BA-F0141A010B	PC FRONT END BLK FE41 (V)
FL101	EH-360924	FILTER LC BP BPM6A [V]
FL102-A	EH-394759J	FILTER CE SFE10.7MS2GK-A [U]
FL102-B	EH-338338	FILTER CE SFE10.7MS3GK-A [V]
FL103-A	EH-394759J	FILTER CE SFE10.7MS2GK-A [U]
FL103-B	EH-338338	FILTER CE SFE10.7MS3GK-A [V]
FL104	EH-405199J	FILTER LC LP K7-J1YD-0170 [V]
FL201	EH-344434	FILTER CE BFU450C4N 0.450MHZ
FL301	EH-403228J	FILTER LC LP S033368
FL302	EH-403228J	FILTER LC LP S033368
IC101	EI-361624	IC LA1265
IC301	EI-359683	IC TA7343AP
IC302	EI-367572	IC BA15218
IC401	EI-361622	IC LM7001
L301	EO-353588	COIL FIX 1 LAP02 F05 2R2K [V]
L302	EO-353588	COIL FIX 1 LAP02 F05 2R2K [V]
SW1	ES-362883	SW TACT SKHHLM [RESET]
T101	EO-389617J	COIL DET 2 777-5073-04 10.7MHZ
T201	EO-395923J	COIL VARI 2 4334-298
T204	EO-405196J	COIL OSC 2 008116025 150.0UH
T205	EO-356732	COIL IFT BCFLZ-450A
TM1	EJ-359031	TERMINAL LEVER YKD31-0215 P 2P
TR101	ET-356437	TR 2SC930 D2.E.F
TR102	ET-397160J	TR 2SC3330 R.S.T.U.V
TR103	ET-397160J	TR 2SC3330 R.S.T.U.V
TR301	ET-397160J	TR 2SC3330 R.S.T.U.V
TR302	ET-397160J	TR 2SC3330 R.S.T.U.V
TR303	ET-354094	TR DTC144WS
TR304	ET-354094	TR DTC144WS
TR401	ET-337759	TR FET 2SK246 GR
TR402	ET-397160J	TR 2SC3330 R.S.T.U.V
TR405	ET-353899	TR 2SA1317 S.T.U
TR406	ET-353899	TR 2SA1317 S.T.U
TR501	ET-366581	TR 2SD1762 E.F
TR502	ET-354371	TR DTC124ES
VC201	EC-394757J	C S-FIX H T05 VCT51F 5.5-30
VR201	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR202	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR301	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR302	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
X401	EI-344422	OSC X'TAL HC-18/U 7.200MHZ

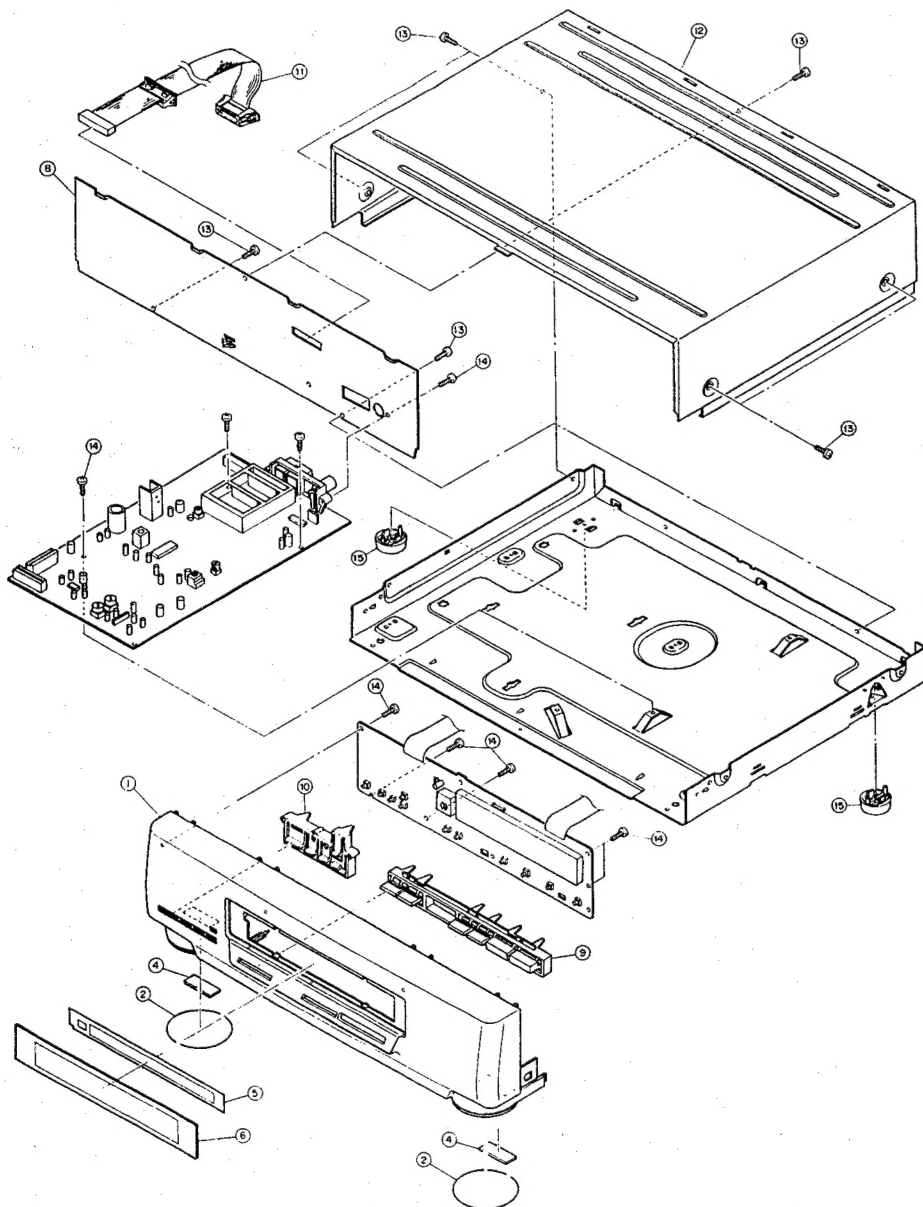
#### 4. TUNER P.C BOARD (AT-M430L/630L)

Ref.No.	Part No.	Description
D1	ED-349448	D VARACTOR 1SV147
D2	ED-349448	D VARACTOR 1SV147
D4	ED-349448	D VARACTOR 1SV147
D201	ED-372893	D VARACTOR SVC321SPA A DBL
D202	ED-372893	D VARACTOR SVC321SPA A DBL
D205	ED-307572	D SILICON H 1SS131
D206	ED-307572	D SILICON H 1SS131
D301	ED-307572	D SILICON H 1SS131
D302	ED-307572	D SILICON H 1SS131
D303	ED-307572	D SILICON H 1SS131
D304	ED-307572	D SILICON H 1SS131
D401	ED-306010	D ZENER H HZ6 A2
D402	ED-307572	D SILICON H 1SS131
D501	ED-324526	D ZENER H HZ12 C1
D502	ED-307572	D SILICON H 1SS131
D503	ED-307572	D SILICON H 1SS131
D504	ED-307572	D SILICON H 1SS131
FL102	EH-394759J	FILTER CE SFE10.7MS2GK-A
FL103	EH-394759J	FILTER CE SFE10.7MS2GK-A
FL201	EH-344434	FILTER CE BFU450C4N 0.450MHZ
FL301	EH-403228J	FILTER LC LP S033368
FL302	EH-403228J	FILTER LC LP S033368
IC101	EI-361624	IC LA1265
IC301	EI-359683	IC TA7343AP
IC302	EI-367572	IC BA15218
IC401	EI-361622	IC LM7001
L1	EO-349461	COIL FIX 2 LINK
L2	EO-349462	COIL FIX 2 U147
L3	EO-349461	COIL FIX 2 LINK
L4	EO-349462	COIL FIX 2 U147
L6	EO-353588	COIL FIX 1 LAP02 F05 2R2K
L7	EO-353687	COIL OSC 2 E525HN-110003
SW1	ES-362883	SW TACT SKHHLM
T1	EO-405195J	COIL IFT *008116023 10.7MHZ
T101	EO-389617J	COIL DET 2 77-5073-04 10.7MHZ
T201	EO-394422J	COIL VARI 2 4334-285
T202	EO-400666J	COIL VARI 2 4334-304
T203	EO-405196J	COIL OSC 2 008116025 150.0UH
T204	EO-405197J	COIL OSC 2 008116022 580.0UH
T205	EO-356732	COIL IFT BCF1Z-450A
TM1	EJ-359031	TERMINAL LEVER YKD31-0215 P 2P
TR1	ET-349449	TR FET 2SK161 Q.Y
TR2	ET-393714J	TR 2SC2999 C.D.E
TR3	ET-356437	TR 2SC930 D2.EF
TR4	ET-349449	TR FET 2SK161 Q.Y
TR101	ET-356437	TR 2SC930 D2.EF
TR102	ET-397160J	TR 2SC3330 R.S.T.U.V
TR103	ET-397160J	TR 2SC3330 R.S.T.U.V
TR201	ET-349458	TR FET 2SK192A Y
TR202	ET-394735J	TR 2SC3792 T05
TR203	ET-353897	TR DTC114ES
TR301	ET-397160J	TR 2SC3330 R.S.T.U.V
TR302	ET-397160J	TR 2SC3330 R.S.T.U.V
TR303	ET-354094	TR DTC144WS
TR304	ET-354094	TR DTC144WS
TR401	ET-337759	TR FET 2SK246 GR
TR402	ET-397160J	TR 2SC3330 R.S.T.U.V
TR403	ET-354094	TR DTC144WS
TR404	ET-354094	TR DTC144WS
TR405	ET-353899	TR 2SA1317 S.T.U
TR406	ET-353899	TR 2SA1317 S.T.U
TR501	ET-366581	TR 2SD1762 E.F
TR502	ET-354371	TR DTC124ES
VC201	EC-394757J	C S-FIX H T05 VCT51F 5.5-30
VC202	EC-394758J	C S-FIX H T05 VCT51G 7.5-50
VR201	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR202	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR301	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR302	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
X401	EI-344422	OSC XTAL HC-18/U 7.200MHZ

#### 5. FRONT P.C BOARD

Ref.No.	Part No.	Description
D601	ED-307572	D SILICON H 1SS131
D602	ED-307572	D SILICON H 1SS131
D603	ED-307572	D SILICON H 1SS131
D604	ED-307572	D SILICON H 1SS131
D605	ED-307572	D SILICON H 1SS131
D606	ED-307572	[V] [AT-M430/M630] D SILICON H 1SS131 [U] [AT-M430/M630] D SILICON H 1SS131
D607	ED-307572	D SILICON H 1SS131
D608	ED-307572	D SILICON H 1SS131
IC601-A	EI-401276J	IC TMP47C870N-4327 FXX2TN1 [AT-M430/L] IC TMP47C870N-4324 FXA2TN1 [AT-M630/L]
IC601-B	EI-401274J	IC TMP47C870N-4324 FXA2TN1 [AT-M630/L]
IN601-A	EM-392847J	IND FL FIP9BKM8 CHARACTER [AT-M430/L]
IN601-B	EM-392846J	IND FL FIP14JMB CHARACTER [AT-M630/L]
PH601	ET-390397J	DETECTOR GP1U501
SW601	ES-394427J	SW TACT SOR-133HS T05
SW602	ES-394427J	SW TACT SOR-133HS T05
SW603	ES-394427J	SW TACT SOR-133HS T05
SW604	ES-394427J	SW TACT SOR-133HS T05
SW605	ES-394427J	SW TACT SOR-133HS T05
SW606	ES-394427J	SW TACT SOR-133HS T05
SW607	ES-394427J	SW TACT SOR-133HS T05
SW608	ES-394427J	SW TACT SOR-133HS T05
SW609	ES-394427J	SW TACT SOR-133HS T05
SW610	ES-394427J	SW TACT SOR-133HS T05
SW611	ES-394427J	SW TACT SOR-133HS T05
TR601	ET-354365	TR DTC114YS
TR602	ET-369248	TR DTA114YS
TR603	ET-354365	TR DTC114YS
TR604	ET-369248	TR DTA114YS
TR605	ET-354365	TR DTC114YS
TR606	ET-369248	[AT-M630/L] TR DTA114YS [AT-M630/L]
TR607	ET-354365	TR DTC114YS [AT-M630/L]
TR608	ET-369248	TR DTA114YS [AT-M630/L]
TR609	ET-354365	TR DTC114YS [AT-M630/L]
TR610	ET-369248	TR DTA114YS [AT-M630/L]
TR611	ET-354371	TR DTC124ES
TR612	ET-354371	TR DTC124ES
X601	EI-389618J	OSC XTAL AT-51 4.194304MHZ

## FINAL ASSEMBLY



## 6. FINAL ASSEMBLY

Ref.No.	Part No.	Description
1-A	SP-401754M	PANEL FRONT-X [AT-M430/L]
1-B	SP-401753M	PANEL FRONT-A [AT-M630/L]
2	SZ-401762M	RING FOOT
4	SA-394136M	CUSHION FOOT
5-A	SE-402582M	FILTER FLD(AT-X)-B [AT-M430/L]
5-B	SE-402580M	FILTER FLD(AT)-B [AT-M630/L]
6	SE-401755M	WINDOW
8-A	SP-402651M	PANEL REAR AT-M430(U)
8-B	SP-402650M	PANEL REAR AT-M430(E)
8-C	SP-402649M	PANEL REAR AT-M430(V)
8-D	SP-402648M	PANEL REAR AT-M630(U)
8-E	SP-402646M	PANEL REAR AT-M630(E)
8-F	SP-402645M	PANEL REAR AT-M630(V)
9	SK-401757M	BUTTON TUNING
10	SK-401756M	BUTTON TIMER
11-A	EW-394418J	WIRE ASSY A3063 14P [AT-M430/L]
11-B	EW-395054J	WIRE ASSY A3063-2 14P [AT-M630/L]
12	SP-394096M	COVER UPPER AT
13	ZS-387983J	ST BID30X08STL BNI EARTH LOCK
14	ZS-331182	BT BID30X08STL BNI
15	SA-394127M1	FOOT REAR

### NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## 7. ACCESSORY

Ref.No.	Part No.	Description
1	EE-394420M	ANT LOOP LA-75
2	EE-396107M	ANT WIRE FM *A3063
3	EJ-394417J	SOCKET COAX HXC 0526-01-010

# ABBREVIATIONS (TUNER)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AFC	Auto Frequency Control	MEMO	MEMOry
AGC	Auto Gain Control	MI-COM	Micro-COMputer
ALC	Auto Level Control	MIN	MINimum
AM	Amplitude Modulation	MIX	MIXing
AMP	AMPlifier	MPX	Multi pleX
ANT	ANTenna	MW	Medium Wave (frequency)
BATT	BATTery	NC	No Connection
BLK	BLock	NFB	Negative Feed Back
BUFF	BUFFer	OSC	OSCillator
COMP	COMParator	PCB	Printed Circuit Board
DET	DETECT (DETECTOR)	PLL	Phase Locked Loop
FLD		Q.D	Quadrature Detector
FM	Frequency Modulation	Rch	Right channel
FREQ	FREQuency	REF	REFerence
GND	GrouND	REG	REGulator
H	High	RF	Radio Frequency
HPF	High Pass Filter	SEG	SEGment
IF	Intermediate Frequency	SELE	SELEctor
IHF	Institute of High Fidelity	SENS	SENSitivity
IND	INDicator	SIG	SIGnal
I/O	In/Out	S/N	Signal to Noise Ratio
JW	Jumper Wire	SSG	Standard Signal Generator
L	Low	STD	STANdard
LCD	Liquid Crystal Display	SW	SWitch: Short Wave (frequency)
Lch	Left channel	THD	Total Harmonic Distortion
LED	Light Emitting Diode	TP	Test Point
LPF	Low Pass Filter	VCO	Voltage Controlled Oscillator
LW	Long Wave (Frequency)	VR	Variable Resistor
		X'TAL	Crystal

AT-M430/L  
AT-M630/L

# AKAI

MODEL **AT-M430/L**

MODEL **AT-M630/L**

## SCHEMATIC DIAGRAMS AND PC BOARDS

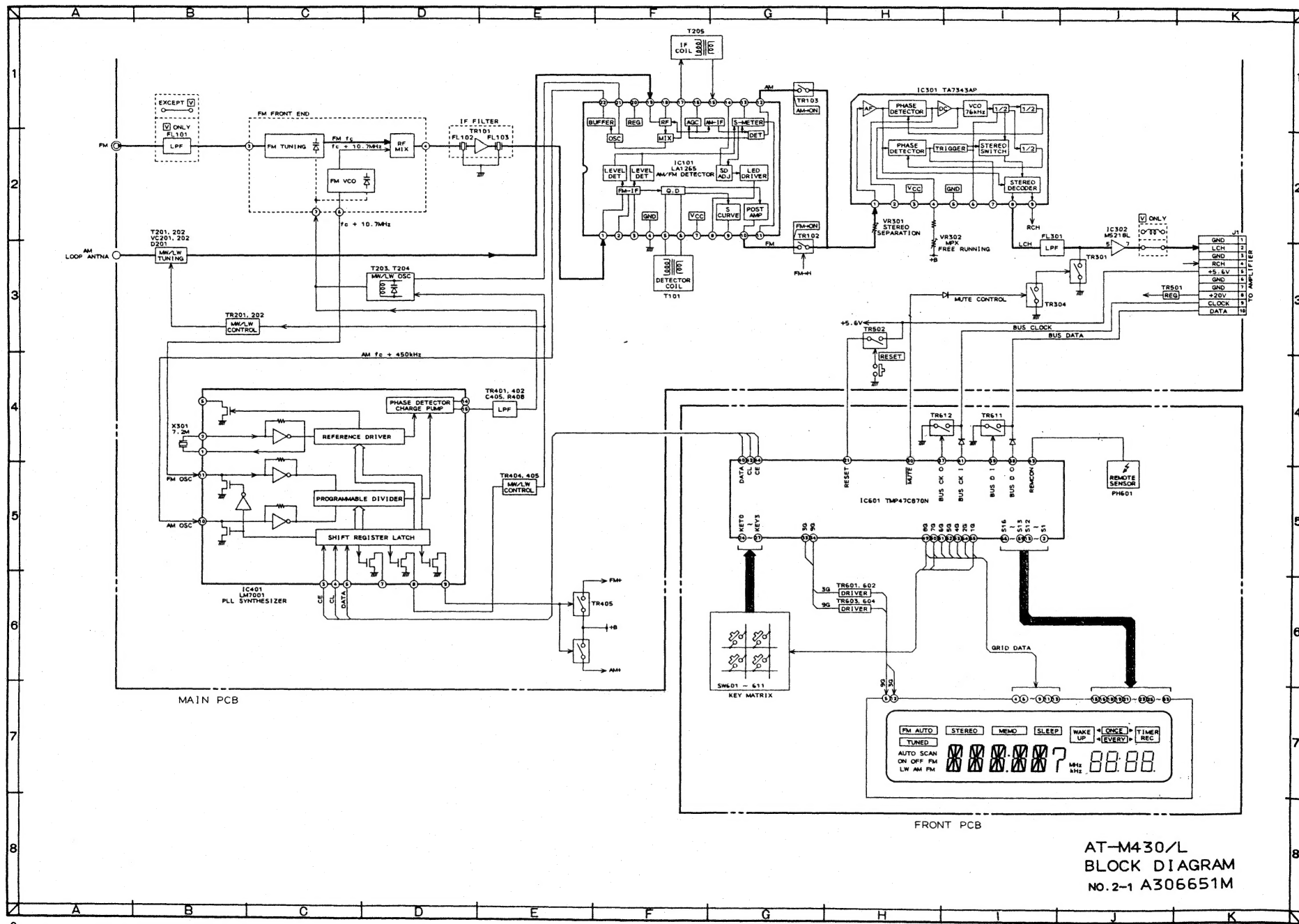
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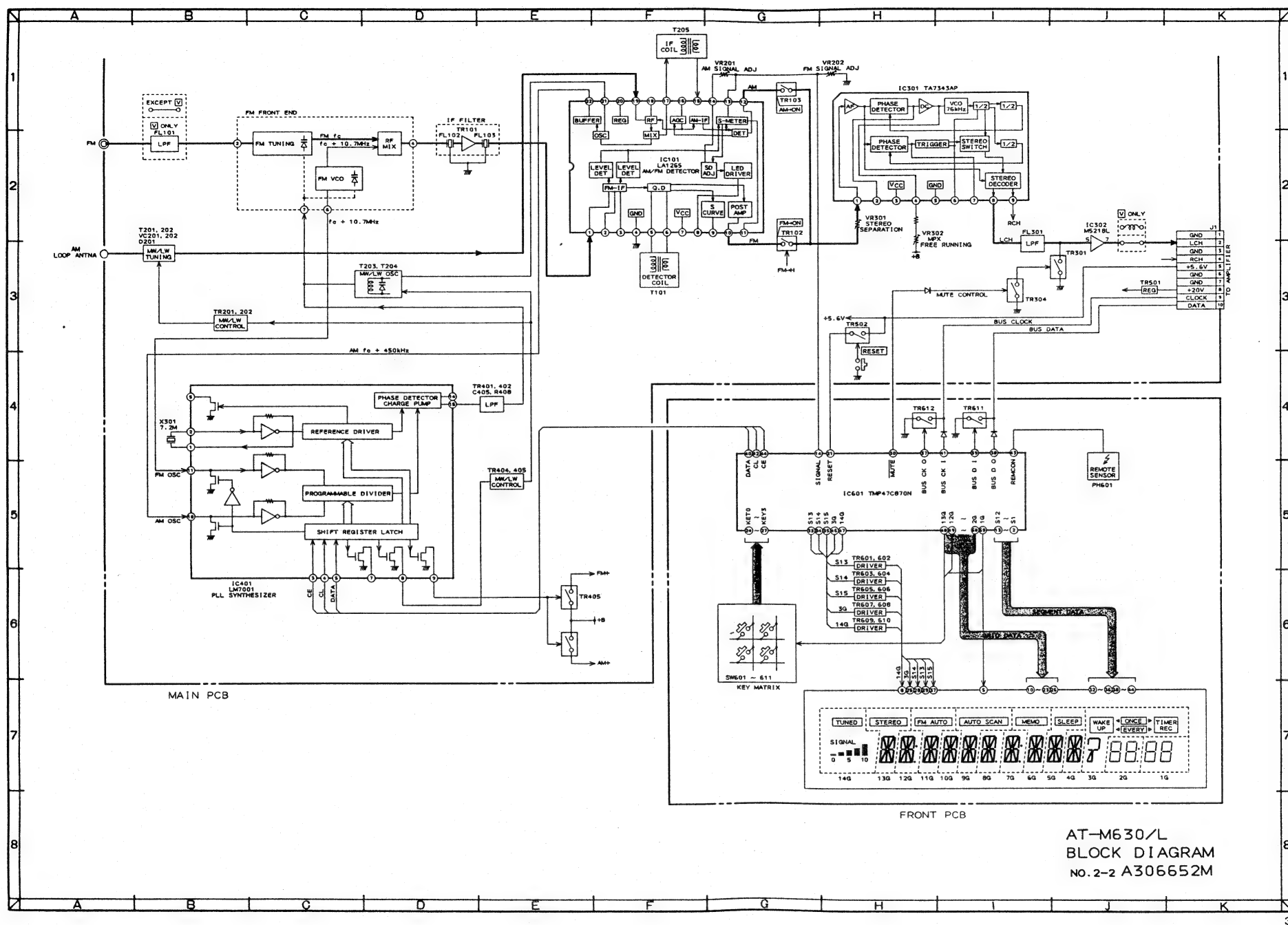
## AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-ku, Tokyo, Japan  
SERVICE DEPARTMENT TEL: Tokyo (3745)9884 TELEX: J26261  
Printed No. 910205-A1-3596 Printed Date April 8, 1991

350 Printed in Japan



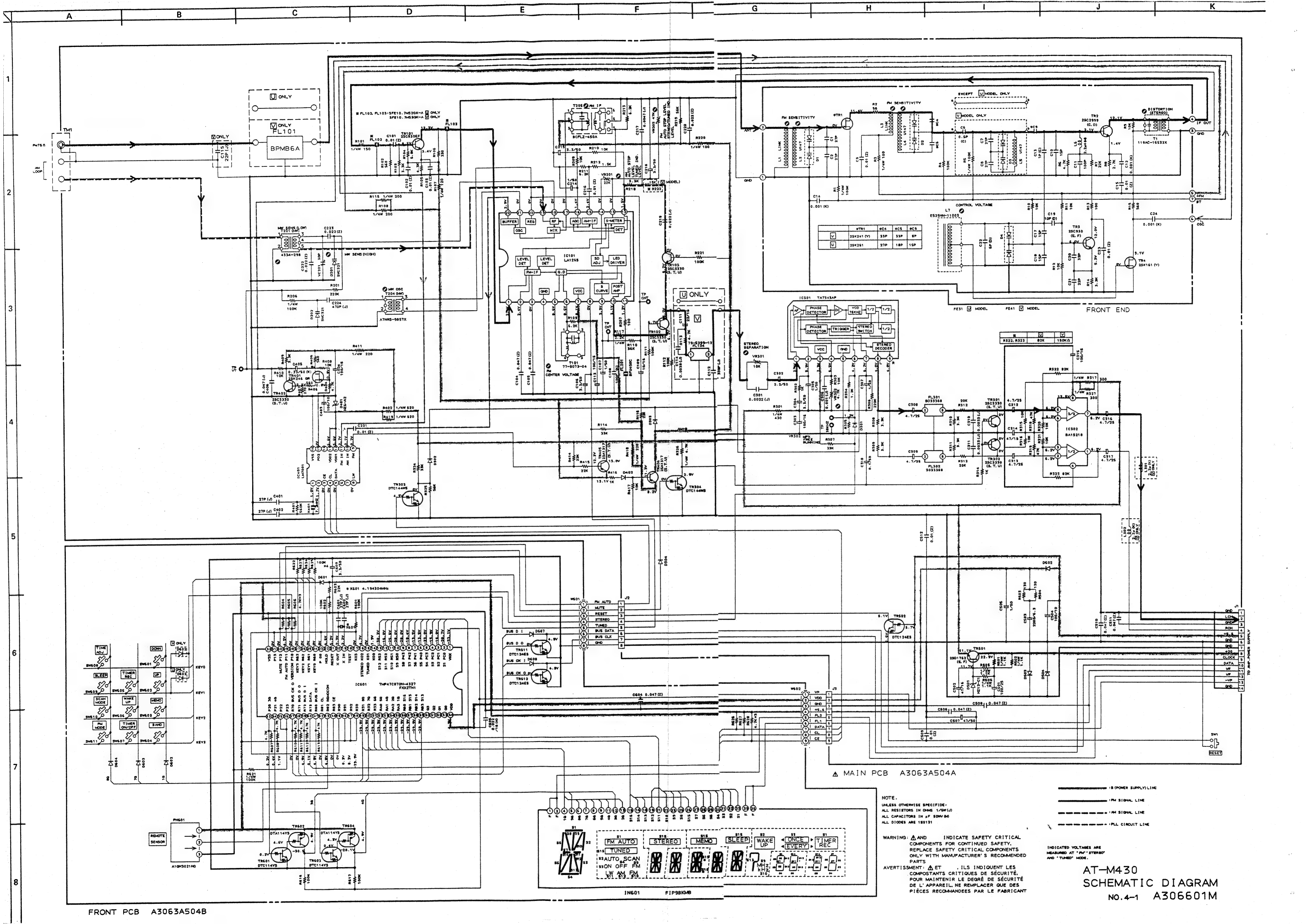
AT-M430/L  
BLOCK DIAGRAM  
NO.2-1 A306651M





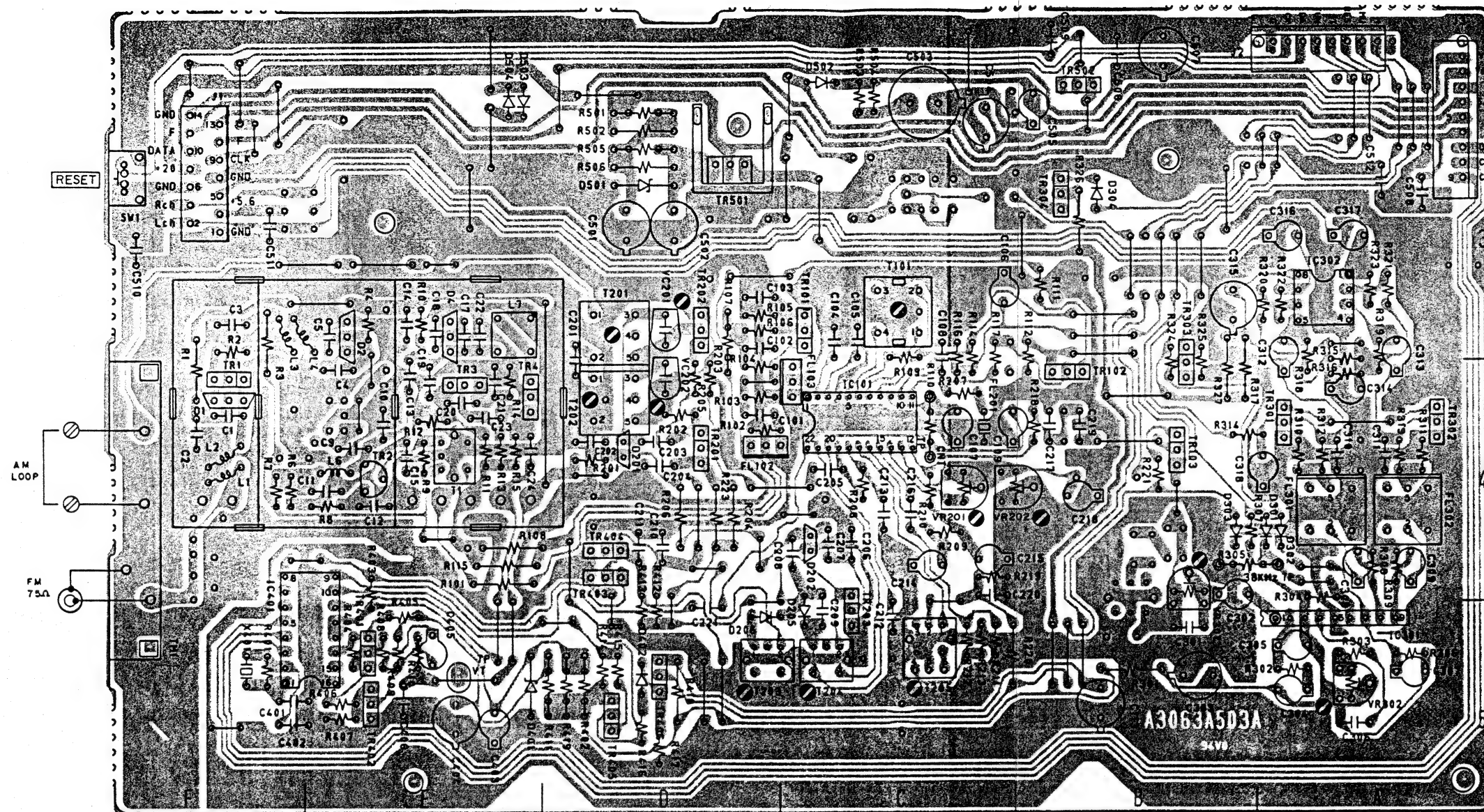












MAIN PCB A3063A503A E B Model

# PRINCIPAL PARTS LOCATION

## ICS

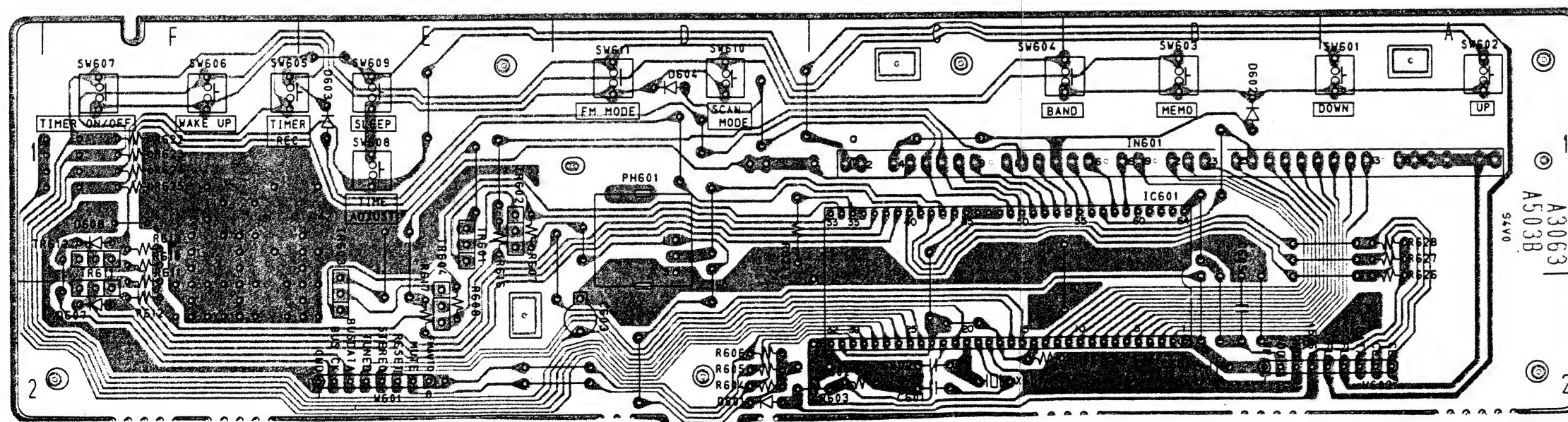
IC101.....C4  
IC301.....A5  
IC302.....A3  
IC401.....E,F4,5

## CONNECTORS

J1.....F3  
J2.....A3  
J3.....A3

## TRANSISTORS

TR1.....F4  
TR2.....E4  
TR3.....E4  
TR4.....E4  
TR101.....C3  
TR102.....B4  
TR103.....B4  
TR201.....D4  
TR202.....D3  
TR203.....C5  
TR301.....A4  
TR302.....A4  
TR303.....B3  
TR304.....B3  
TR401.....E5  
TR402.....E5  
TR403.....D4  
TR404.....D4  
TR405.....D5  
TR406.....D5  
TR501.....D3  
TR502.....B3

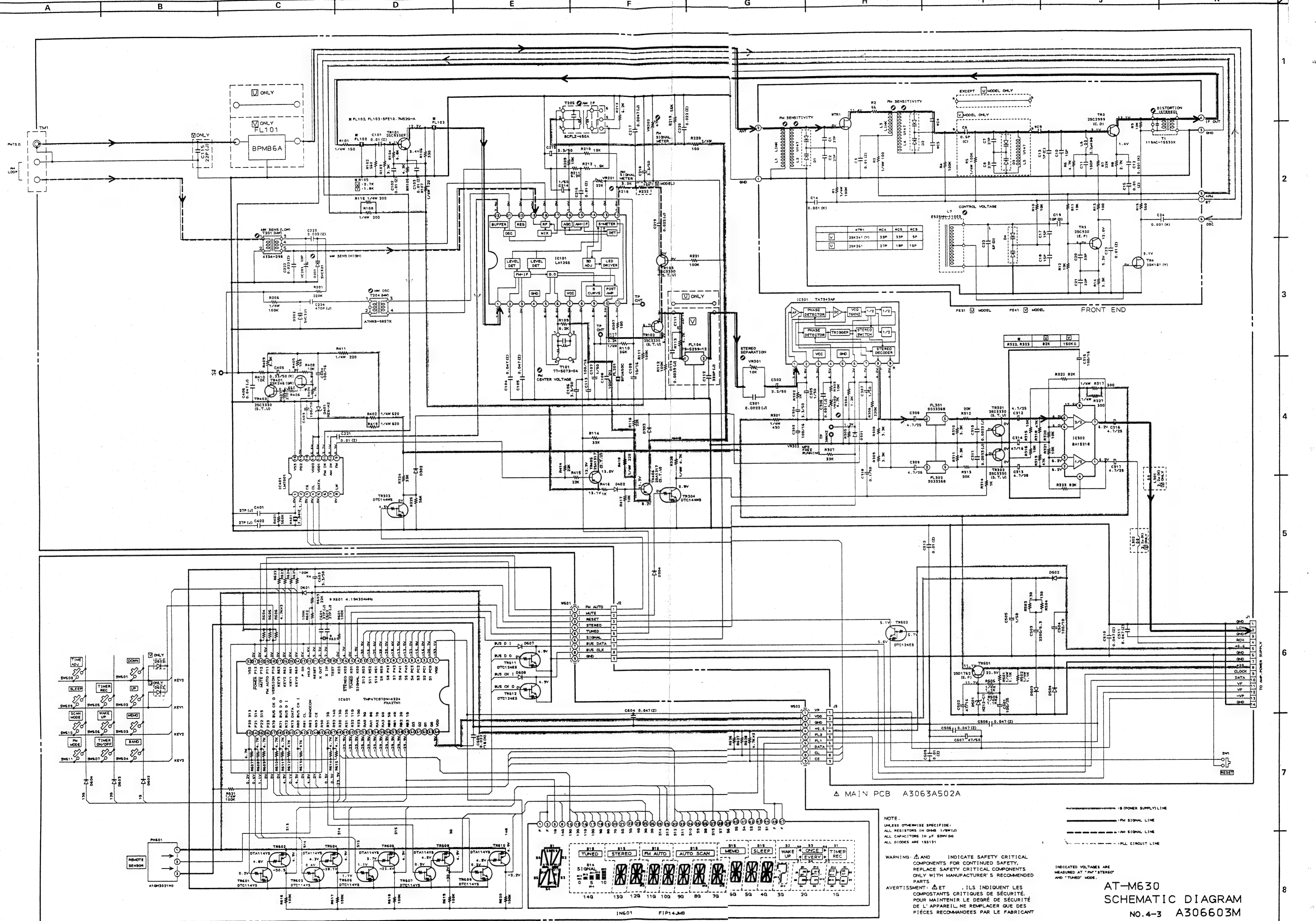


FRONT PCB A3063A503B E B Model









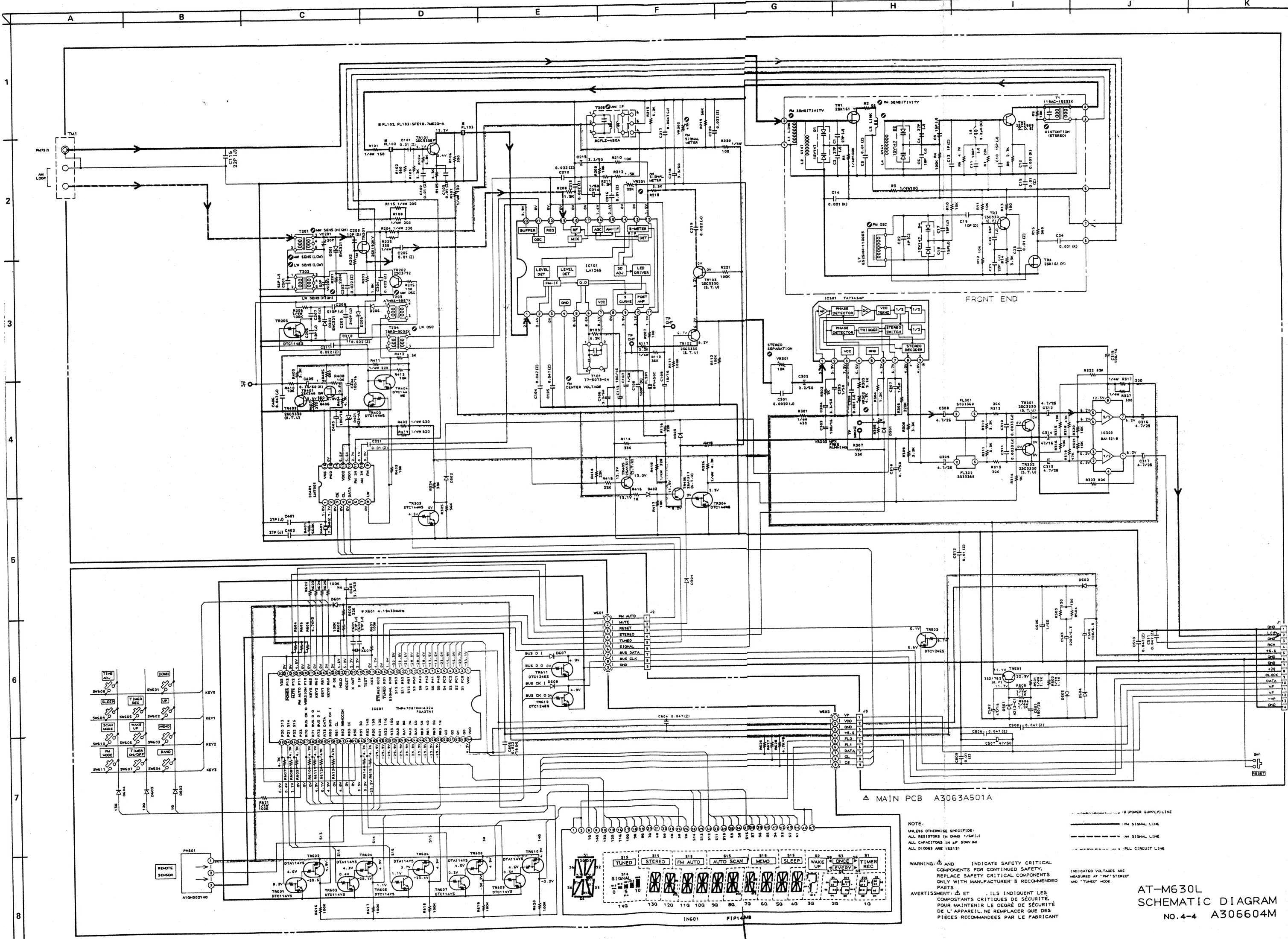
NOTE:  
UNLESS OTHERWISE SPECIFIED:  
ALL RESISTORS IN OHMS, 1/8W (1/4W)  
ALL CAPACITORS IN  $\mu$ F 50V OR 50VDC  
ALL DIODES ARE 1N5131

WARNING:  $\Delta$  AND  $\nabla$  INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

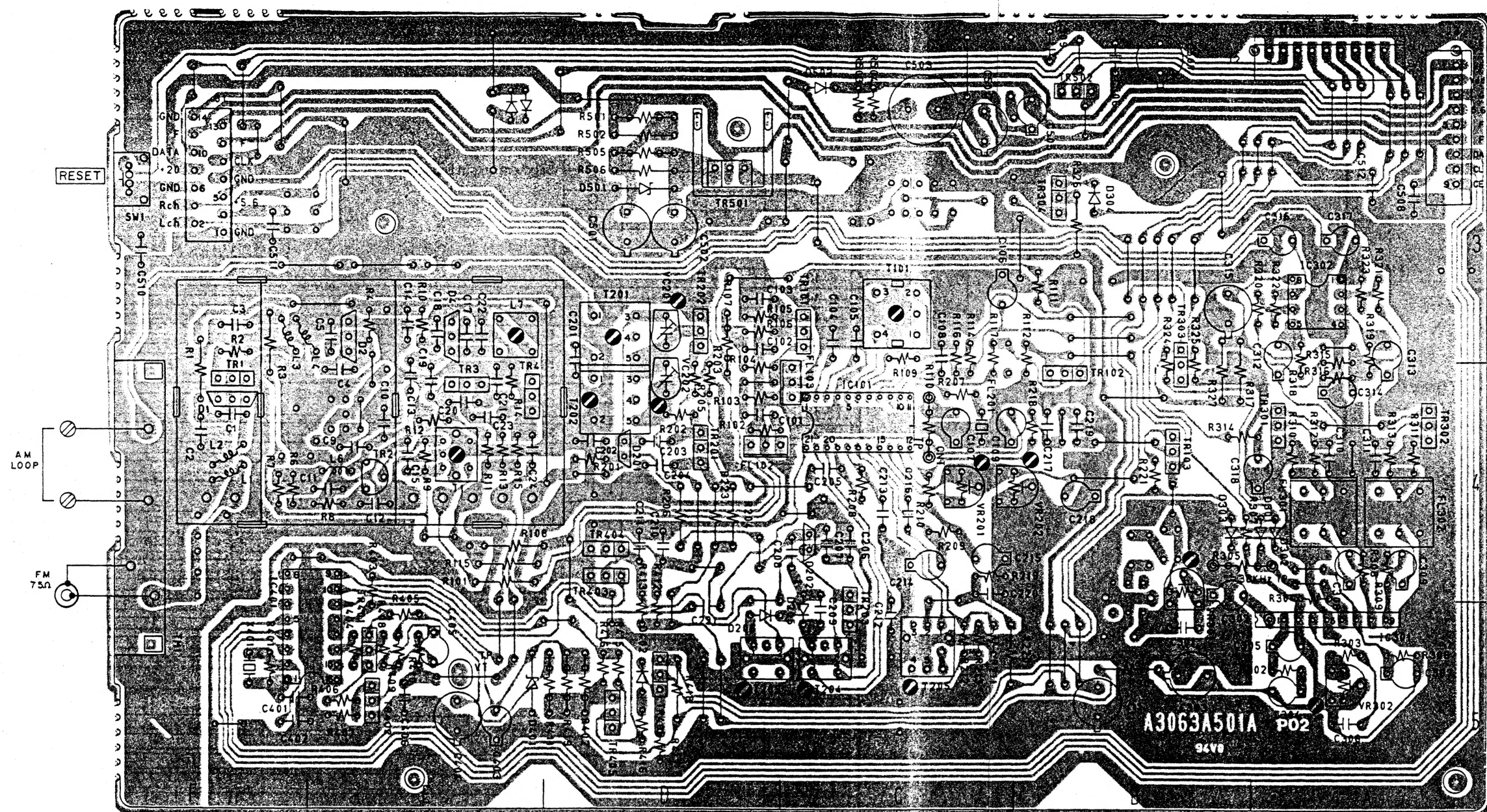
AVERTISSEMENT:  $\Delta$  ET  $\nabla$  ILS INDICENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACEZ QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

INDICATED VOLTAGES ARE MEASURED AT "FM/STEREO" AND "TUNED" MODE.

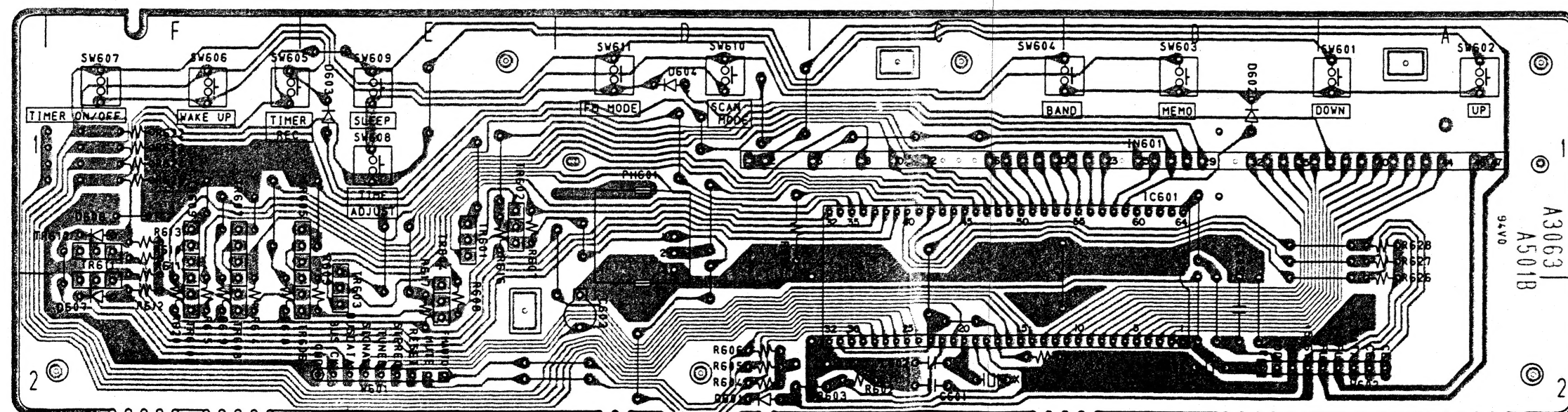
AT-M630  
SCHEMATIC DIAGRAM  
NO.4-3 A306603M







MAIN PCB A3063A501AJI B E Model



FRONT PCB A3063A501BJI B E Model

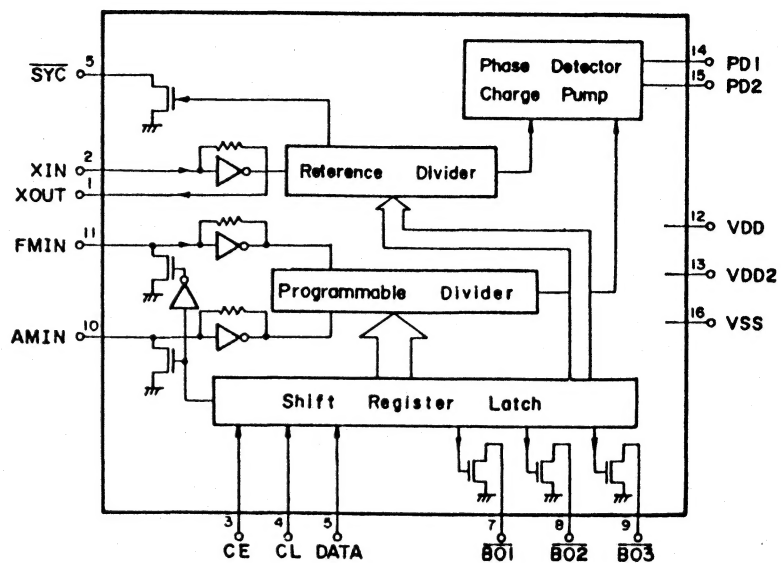
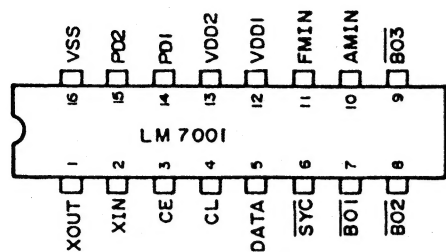
# PRINCIPAL PARTS LOCATION

ICS  
IC101.....C4  
IC301.....A5

CONNECTORS  
J1.....F3  
J2.....A3  
J3.....A3

TRANSISTORS  
TR1.....F4  
TR2.....E4  
TR3.....E4  
TR4.....E4  
TR101.....C3  
TR102.....B4  
TR103.....B4  
TR201.....D4  
TR202.....D3  
TR203.....C4,5  
TR301.....A4  
TR302.....A4  
TR304.....B4  
TR401.....E5  
TR402.....E5  
TR403.....D4  
TR404.....D4  
TR405.....D5  
TR406.....D5  
TR501.....D3  
TR502.....B3

# LM7001 (PLL SYNTHESIZER)





TMP47C870N-4324 (MI-COM)

PIN NO.	PORT NAME	I/O	DESCRIPTION
1	VKK	I	Power input (-30 V)
2	S 1	O	Segment output Indicator.
3	S 2	O	
4	S 3	O	
5	S 4	O	
6	S 5	O	
7	S 6	O	
8	S 7	O	
9	S 8	O	
10	S 9	O	
11	S 10	O	
12	S 11	O	
13	S 12	O	
14	SIGNAL	I	Signal mode input.
15	TUNED	I	Tuned mode input. L: TUNED
16	STEREO	I	Stereo mode input. L: STEREO
17	K 03	-	Not used.
18	TEST	-	Not used.
19	X IN	I	Oscillator for clock.
20	X OUT	O	
21	RESET	I	Reset input.
22	HOLD	I	Power down detect.
23	P 00	-	Not used.
24	KEY 0	I	Key scan input from key matrix.
25	KEY 1	I	
26	KEY 2	I	
27	KEY 3	I	
28	VERSION	O	Output for Version Judge.
29	FM AUTO	O	FM Auto control. L: FM MANUAL H: FM AUTO
30	MUTE	O	Mute control. L: MUTE ON H: MUTE OFF
31	POWER	-	Not used.
32	VSS	-	GND
33	S 13	O	Segment output Indicator.
34	S 14	O	
35	S 15	O	
36	P23	-	Not used.
37	CK 0	O	Clock output.
38	DATA 0	O	Data output.
39	DATA I	I	Data input.
40	DATA	O	Transfer data to PLL IC.
41	CK I	I	Clock input.
42	CL	O	Clock output to PLL IC.
43	REMOCON	I	Remocon data input.
44	CE	O	Chip enable output for selecting PLL IC.
45	R 90	-	Not used.
46	3 G	O	Digit Data output for Indicator.
47	14 G	O	
48	13 G	O	
49	12 G	O	
50	11 G	O	
51	10 G	O	
52	9 G	O	
53	8 G	O	
54	7 G	O	
55	6 G	O	
56	5 G	O	
57	4 G	O	
58	2 G	O	Not used.
59	1 G	O	
60	Q 3	-	
61	Q 2	-	
62	Q 1	-	Not used.
63	Q D	-	
64	VDD	-	+B (+5 V)

TMP47C870N-4327 (MI-COM)

PIN NO.	PORT NAME	I/O	DESCRIPTION
1	VKK	I	Power input (-30 V)
2	S 1	O	Segment output Indicator.
3	S 2	O	
4	S 3	O	
5	S 4	O	
6	S 5	O	
7	S 6	O	
8	S 7	O	
9	S 8	O	
10	S 9	O	
11	S 10	O	
12	S 11	O	
13	S 12	O	Not used.
14	K 00	-	
15	TUNED	I	Tuned mode input.
16	STEREO	I	Stereo mode input.
17	K 03	-	Not used.
18	TEST	-	Not used.
19	X IN	I	Oscillator for clock.
20	X OUT	O	
21	RESET	I	Reset input.
22	HOLD	I	Power down detect.
23	P 00	-	Not used.
24	KEY 0	I	Key scan input from key matrix.
25	KEY 1	I	
26	KEY 2	I	
27	KEY 3	I	
28	VERSION	O	Output for Version Judge.
29	FM AUTO	O	L: FM MANUAL H: FM AUTO
30	MUTE	O	Mute control. L: MUTE ON H: MUTE OFF
31	P13	-	Not used.
32	VSS	-	GND
33	3 G	O	Digit Data output Indicator.
34	9 G	O	
35	P22	-	Not used.
36	P23	-	Not used.
37	CK 0	O	Clock output.
38	DATA OUT	O	Data output.
39	DATA IN	I	Data input.
40	DATA	O	Transfer data to PLL IC.
41	CLK I	I	Clock input.
42	CL	O	Clock output to PLL IC.
43	REMOCON	I	Remocon data input.
44	CE	O	Chip enable output for selecting PLL IC.
45	R 90	-	Not used.
46	R 91	-	
47	R 92	-	
48	R 30	-	
49	8 G	O	Digit Data output for Indicator and Key scanning.
50	7 G	O	
51	6 G	O	
52	5 G	O	
53	4 G	O	
54	2 G	O	
55	1 G	O	Segment output for Indicator.
56	S 16	O	
57	S 15	O	
58	S 14	O	
59	S 13	O	Not used.
60	G 3	-	
61	G 2	-	
62	G 1	-	
63	G D	-	Not used.
64	VDD	-	+B (+5 V)